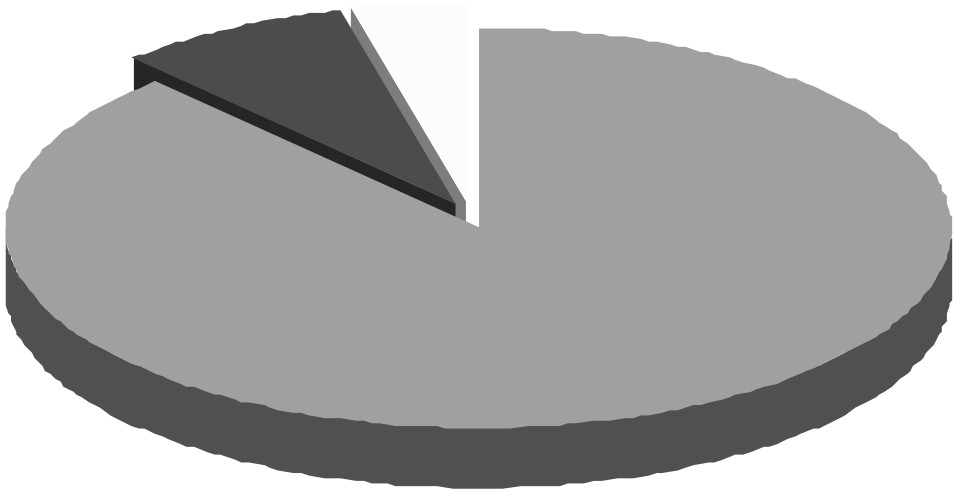
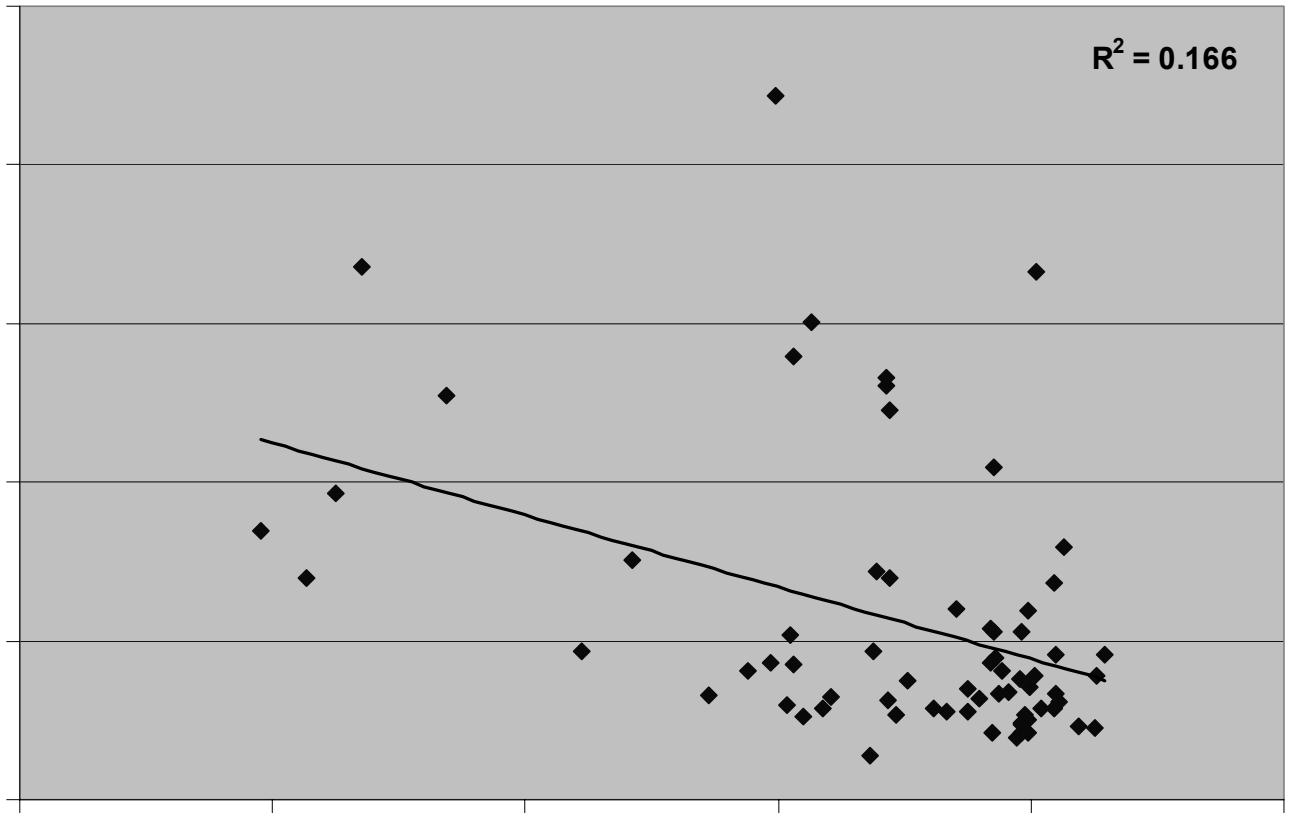
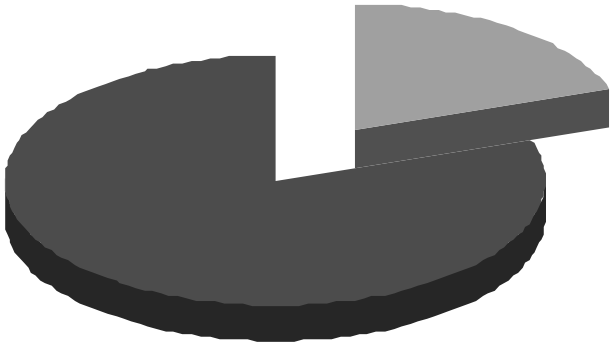
Phosphorus Outputs



Total P Input vs. Mean Flow Weighted Total P Concentration

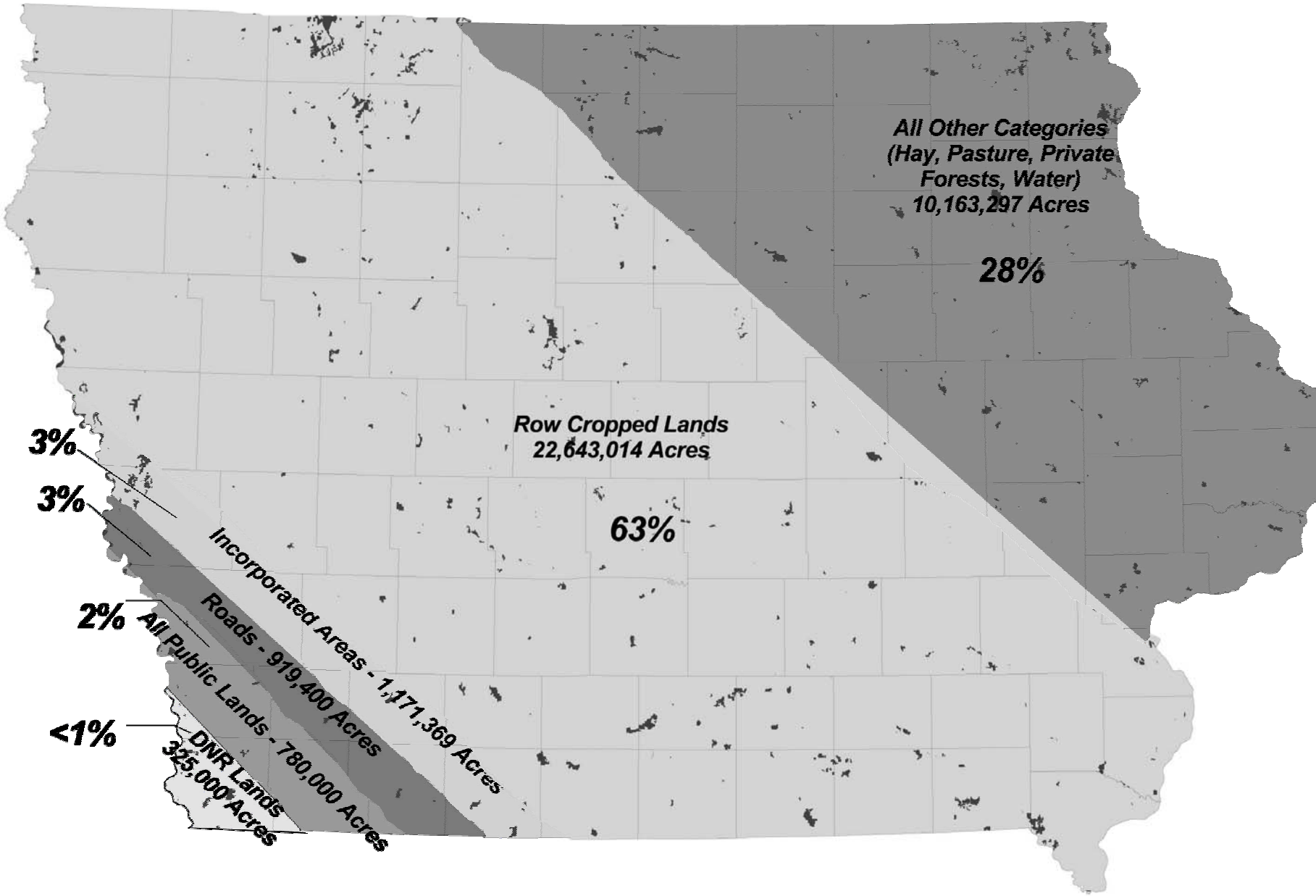


Estimated Point vs. Non-Point Contributions to Stream P-Load



Phosphorus - Preliminary Results

- Large amount of P in our watersheds; P released to water - a very small percentage of available P
- P input sources not correlated with water quality; water monitoring record not well suited for evaluation of Total P
- Point sources of P - 20% of total P in streams
- Non-point sources - 80% of total P in streams

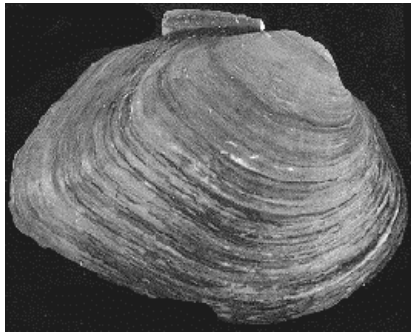

All Other Categories
(Hay, Pasture, Private
Forests, Water)
10,163,297 Acres
28%
Row Cropped Lands
22,643,014 Acres
63%
3%
Incorporated Areas - 1,171,369 Acres
3%
Roads - 919,400 Acres
2%
All Public Lands - 780,000 Acres
<1%
DNR Lands
325,000 Acres

Nutrient Strategy

- A huge issue for Iowa; requires unprecedented commitment to solve
- Agriculture is a significant contributor of nutrients; must be serious partner in identifying and implementing solutions
- Urban sources important locally; urban sources need to maintain and upgrade facilities (wastewater & stormwater)
- May require new approaches

Everyone Wants Clean Water

But what does "clean" mean?



Two tools for evaluating water quality

- Monitoring
- Water quality standards

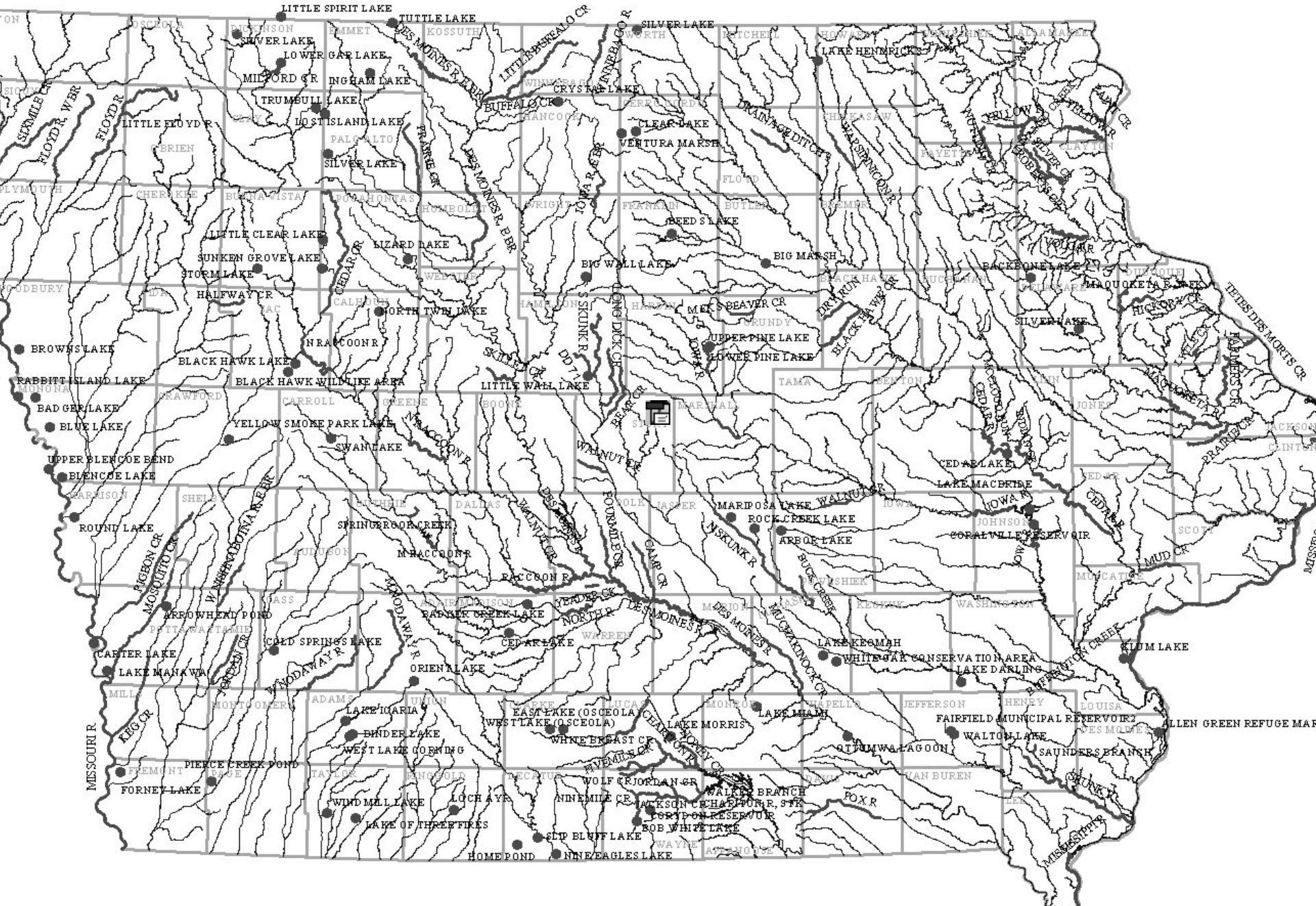
State Water Quality Standards

- Our “yardstick” used to measure water quality
- Monitoring results compared to standards
- Waters that do not meet all standards are considered *impaired*

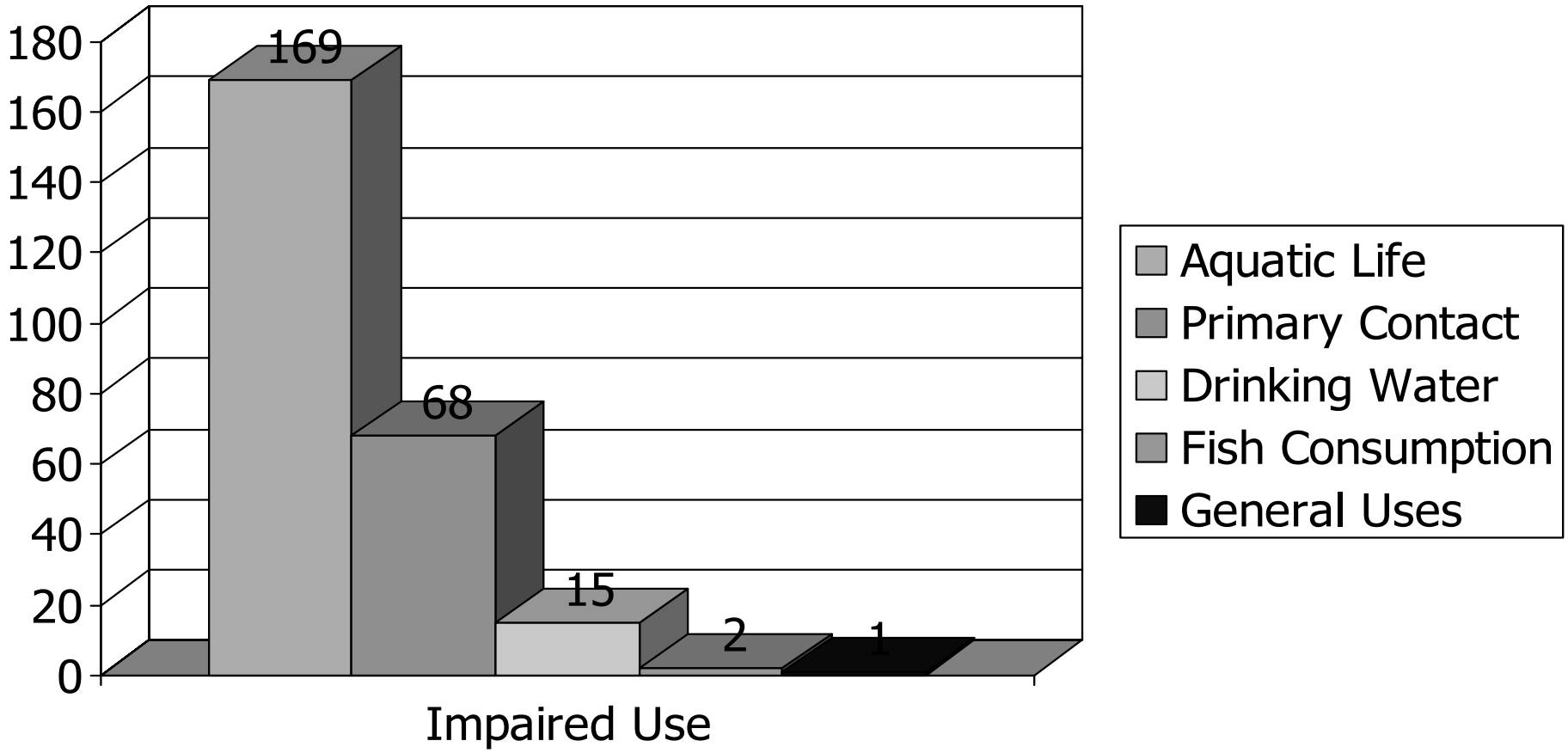
State Water Quality Standards

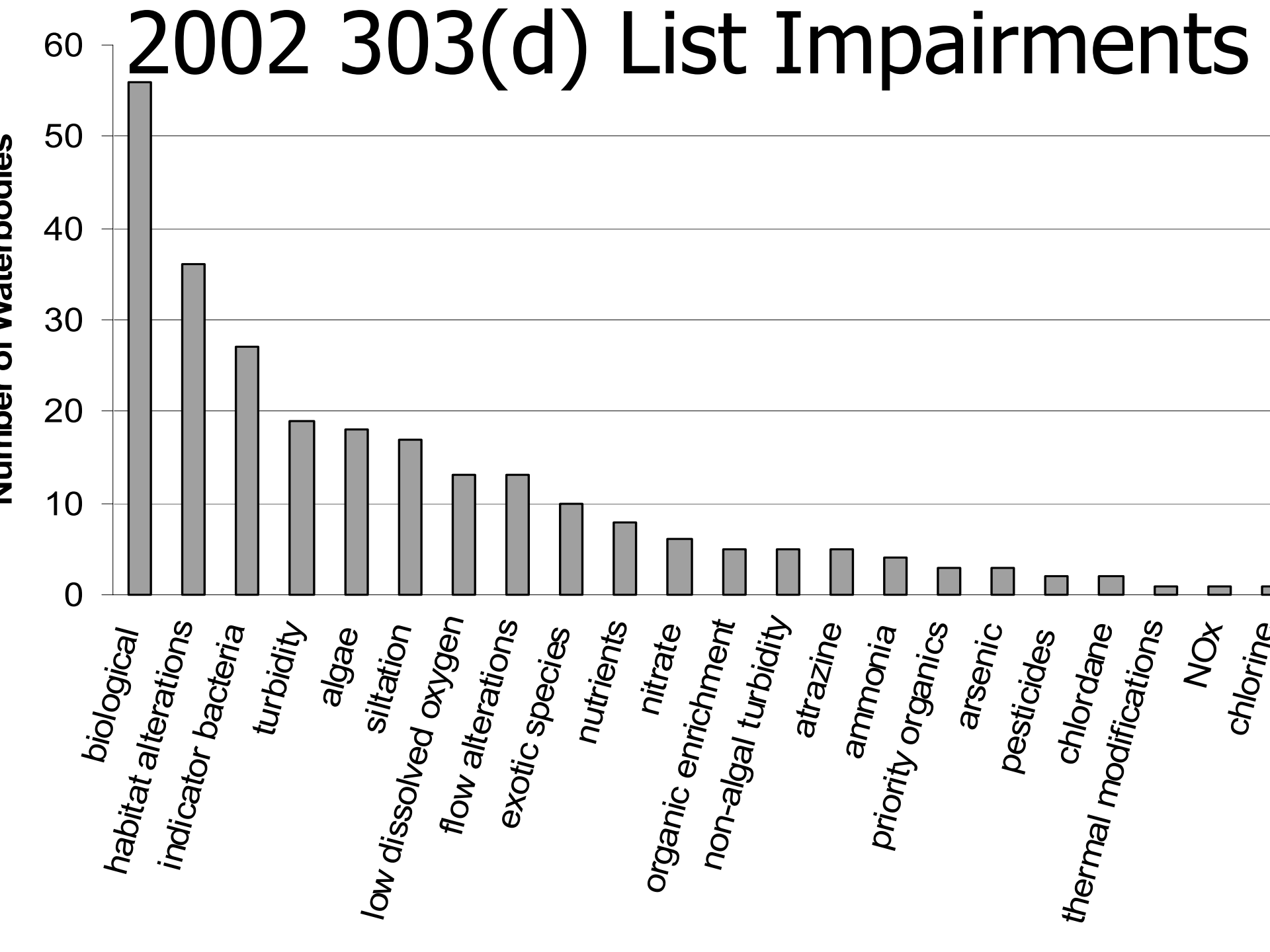
- Define levels of water quality needed for "swimmable, fishable, drinkable uses"
- Four elements:
  - Waterbody uses
  - Narrative standards
  - Numeric standards
  - Antidegradation policy

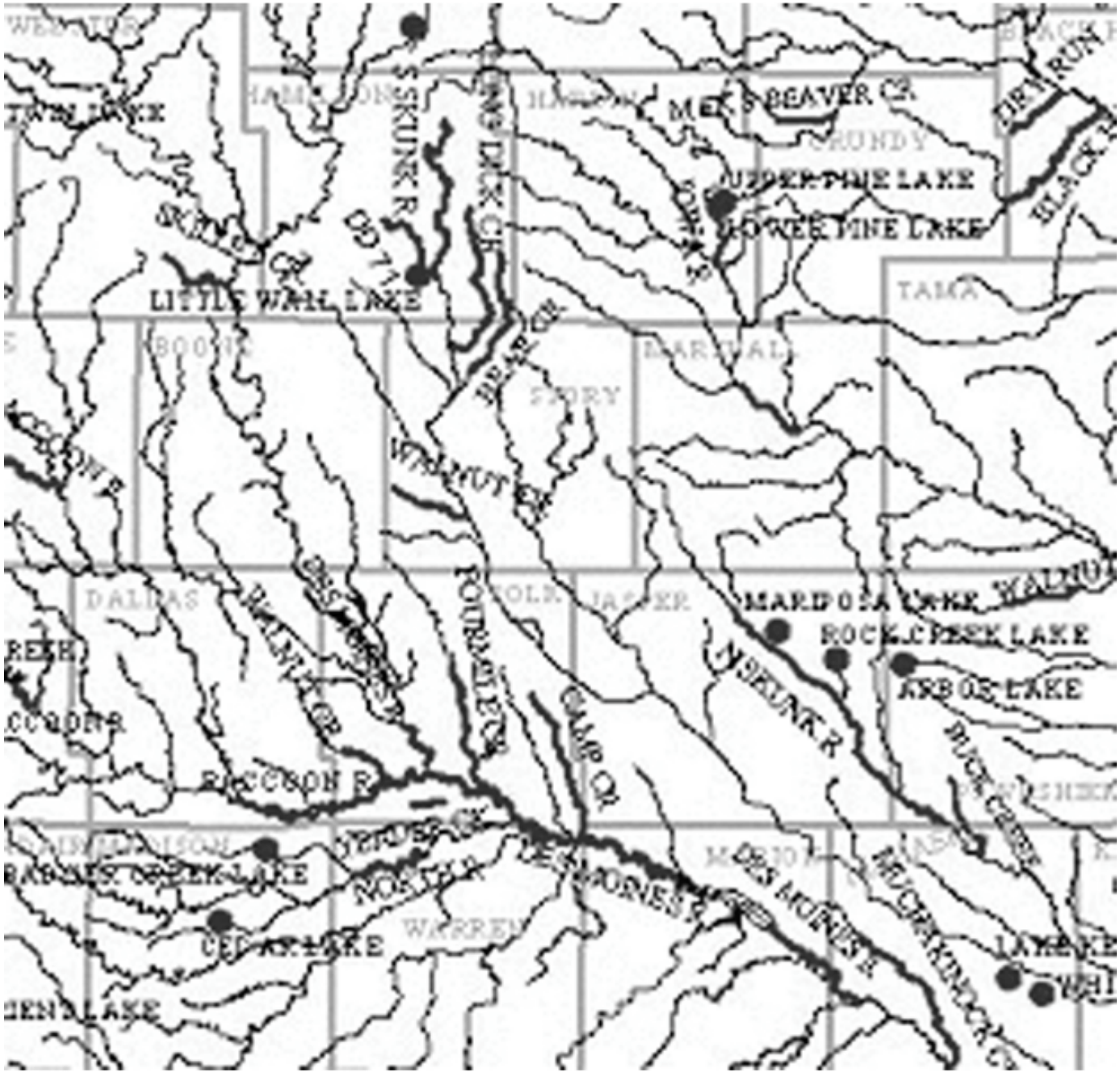
002 Section 303(d) - Impaired Waters



2002 Impaired Beneficial Uses




2002 303(d) List Impairments
Number of Waterbodies
60
50
40
30
20
10
0
biological
habitat alterations
indicator bacteria
turbidity
algae
siltation
low dissolved oxygen
flow alterations
exotic species
nutrients
nitrate
organic enrichment
non-algal turbidity
atrazine
ammonia
priority organics
arsenic
pesticides
chlordane
thermal modifications
NOx
chlorine



● 303(d) Lake or Wetland

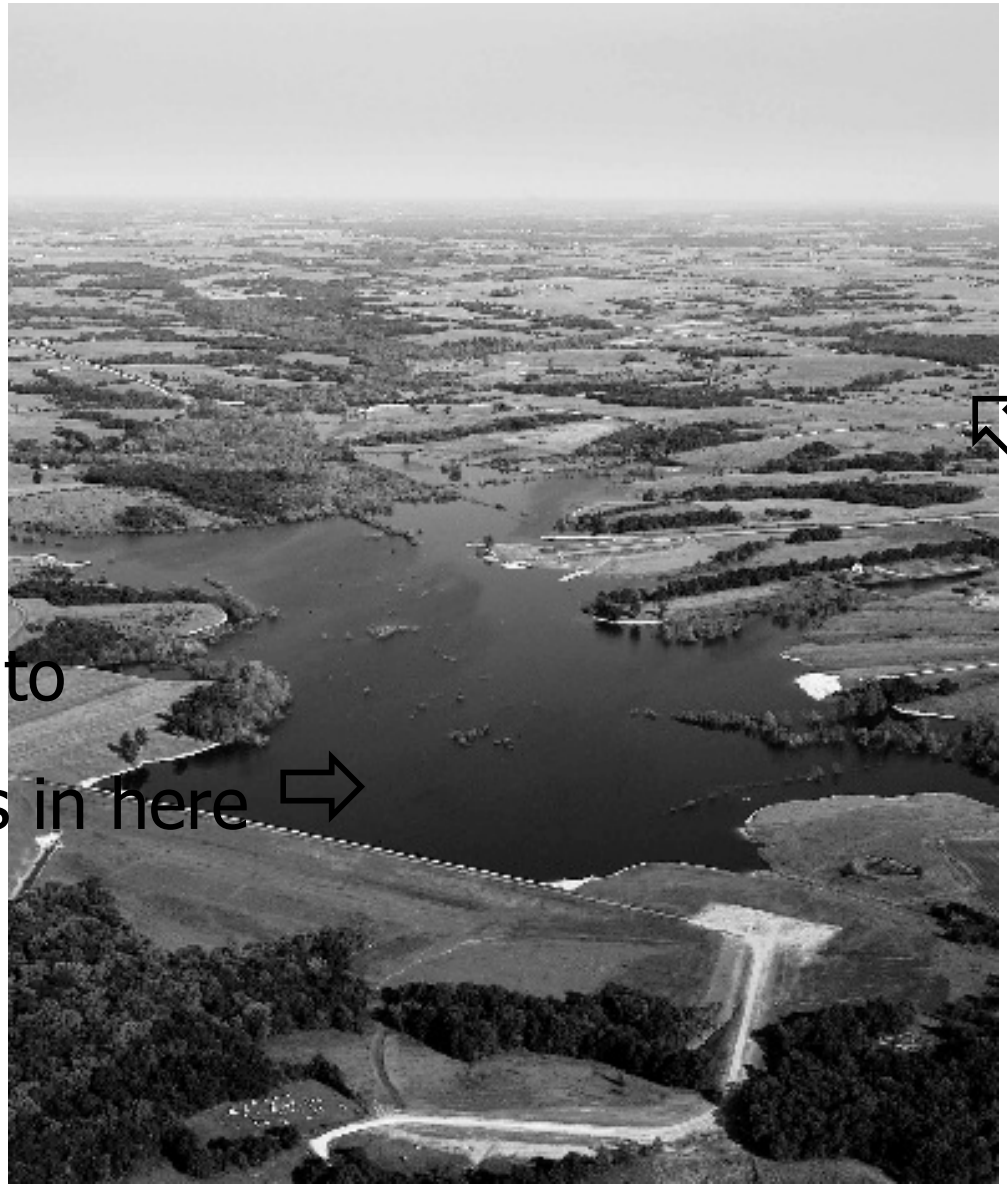
303(d) River or Stream Segment

Fixing our impaired waters

…and improving the quality of all waters

Water quality is very much a land use issue

Watershed Management: The Key to Water

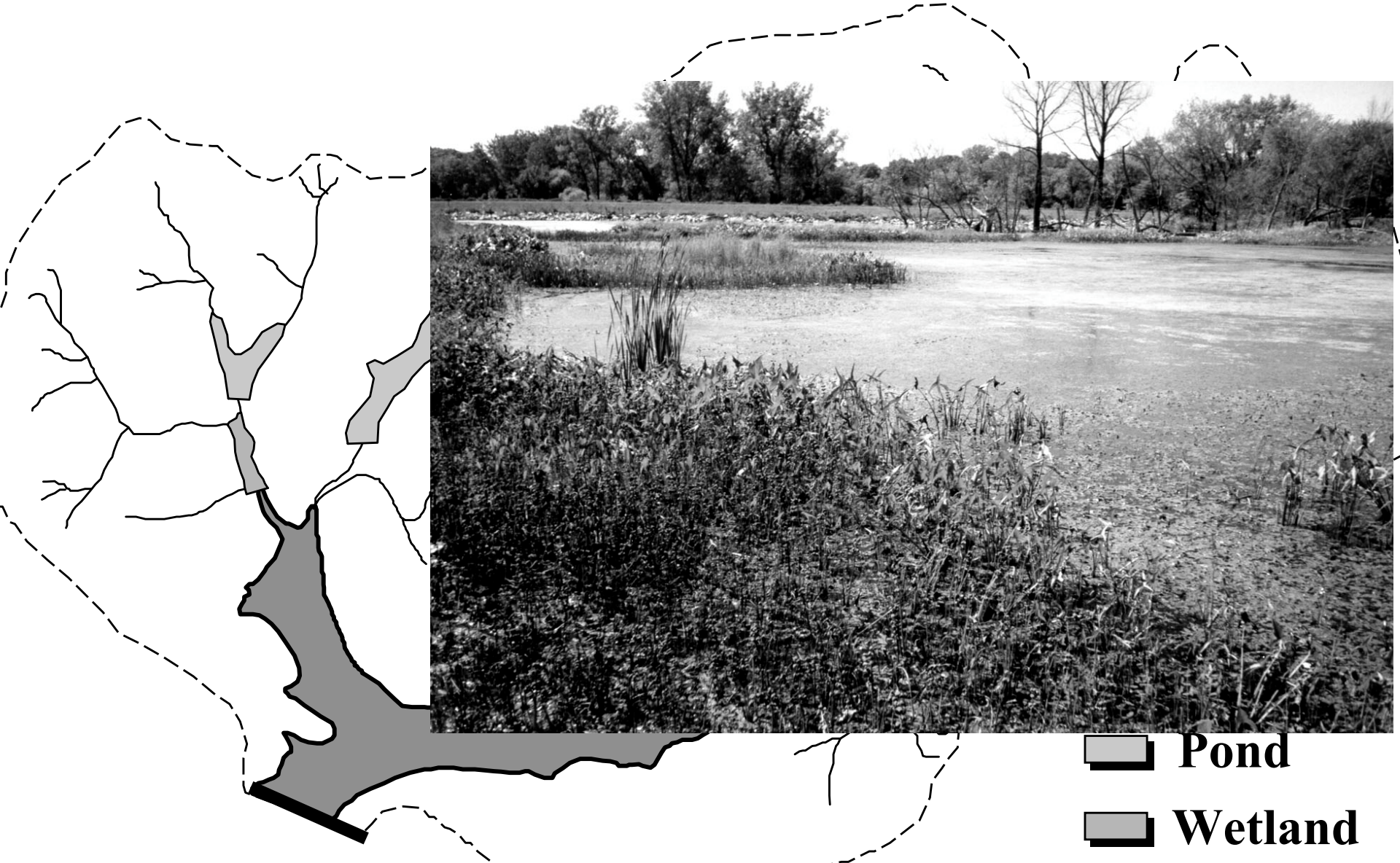


Look up here

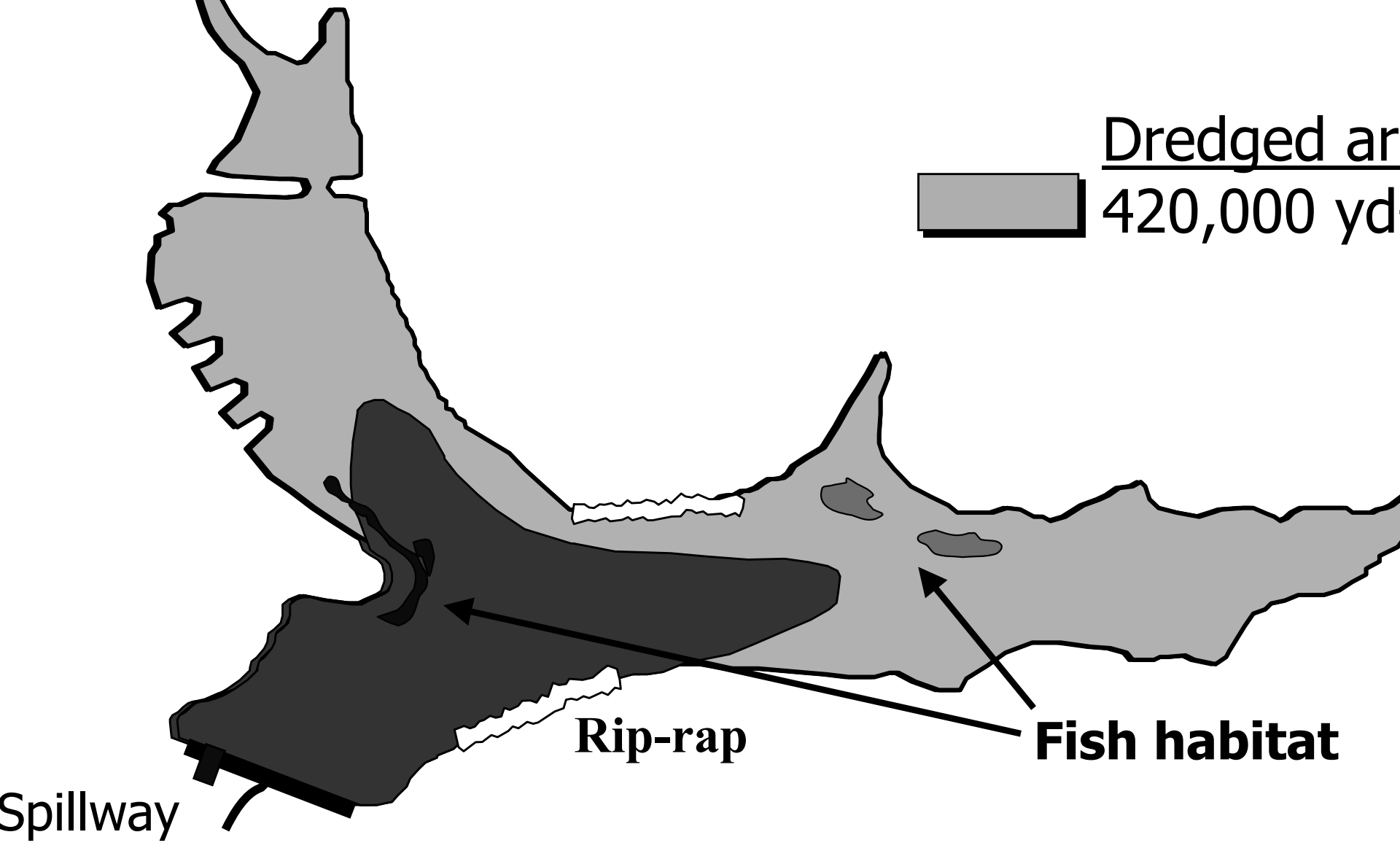
If you want to know what's in here

Solutions to Water Quality Problems Start on the Landscape

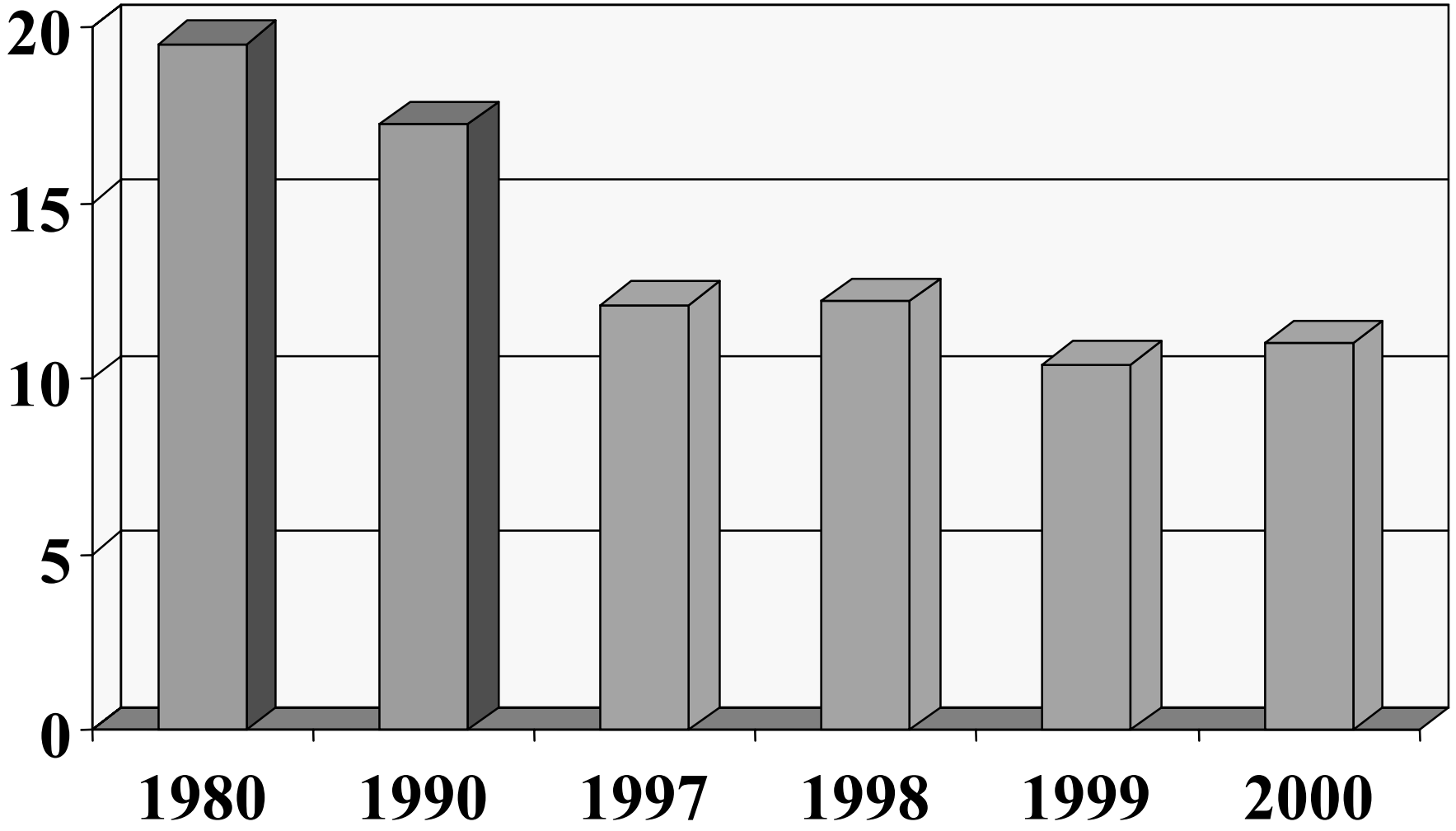
Lake Anquabi - Watershed



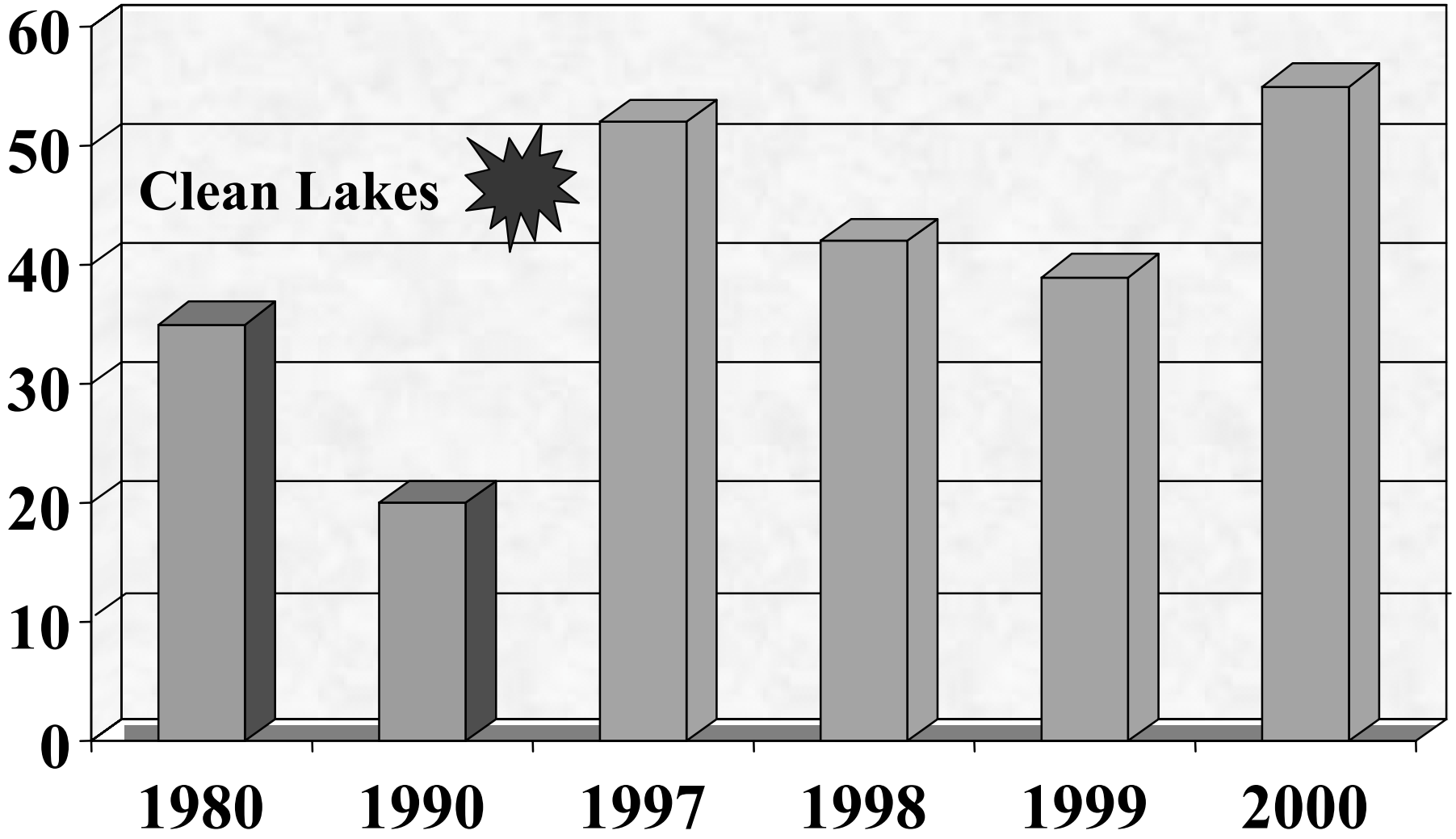
Restoring – Improving Water Quality - Lake Ahquabi



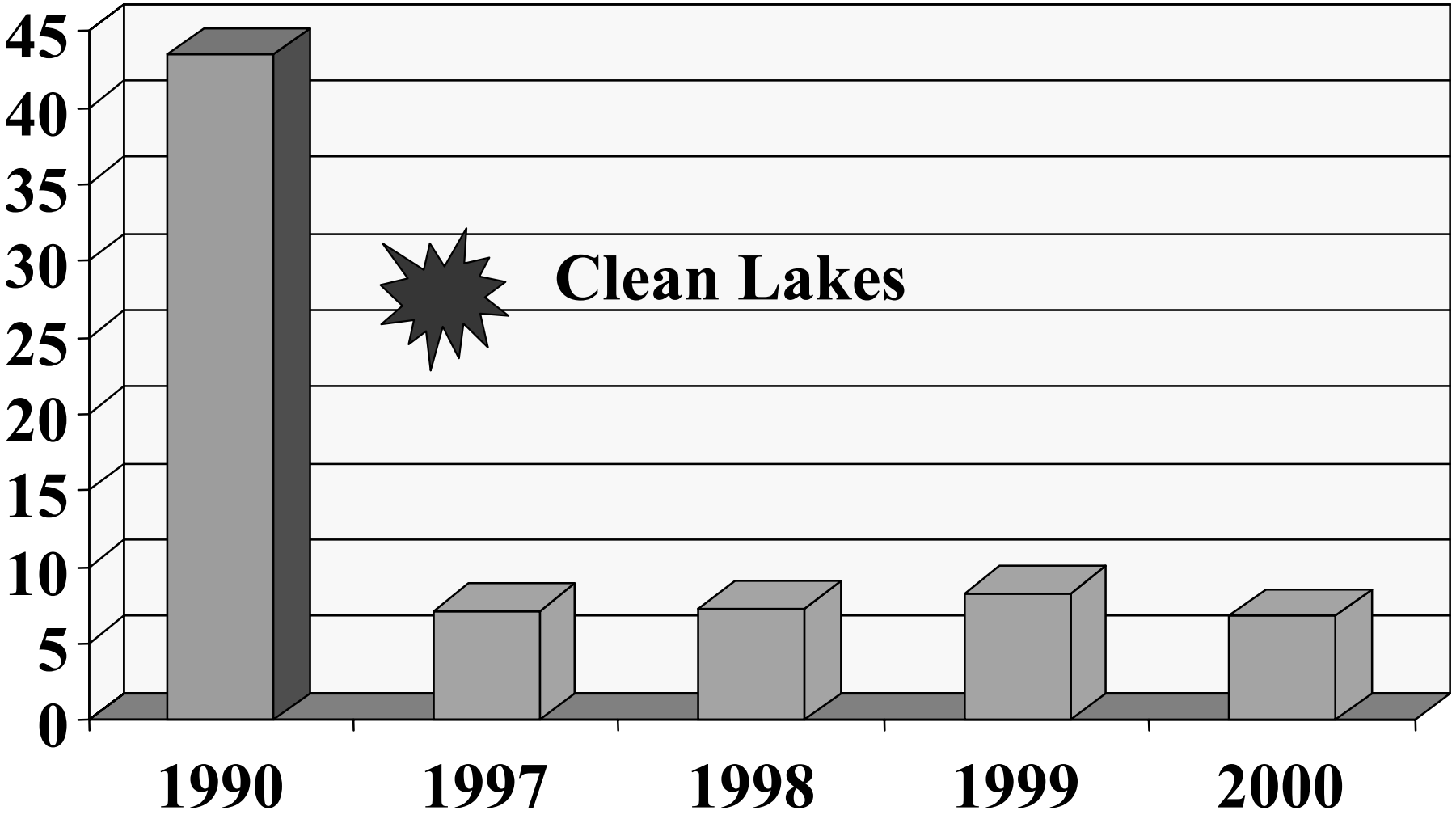
Chlorophyll a (ug/L)



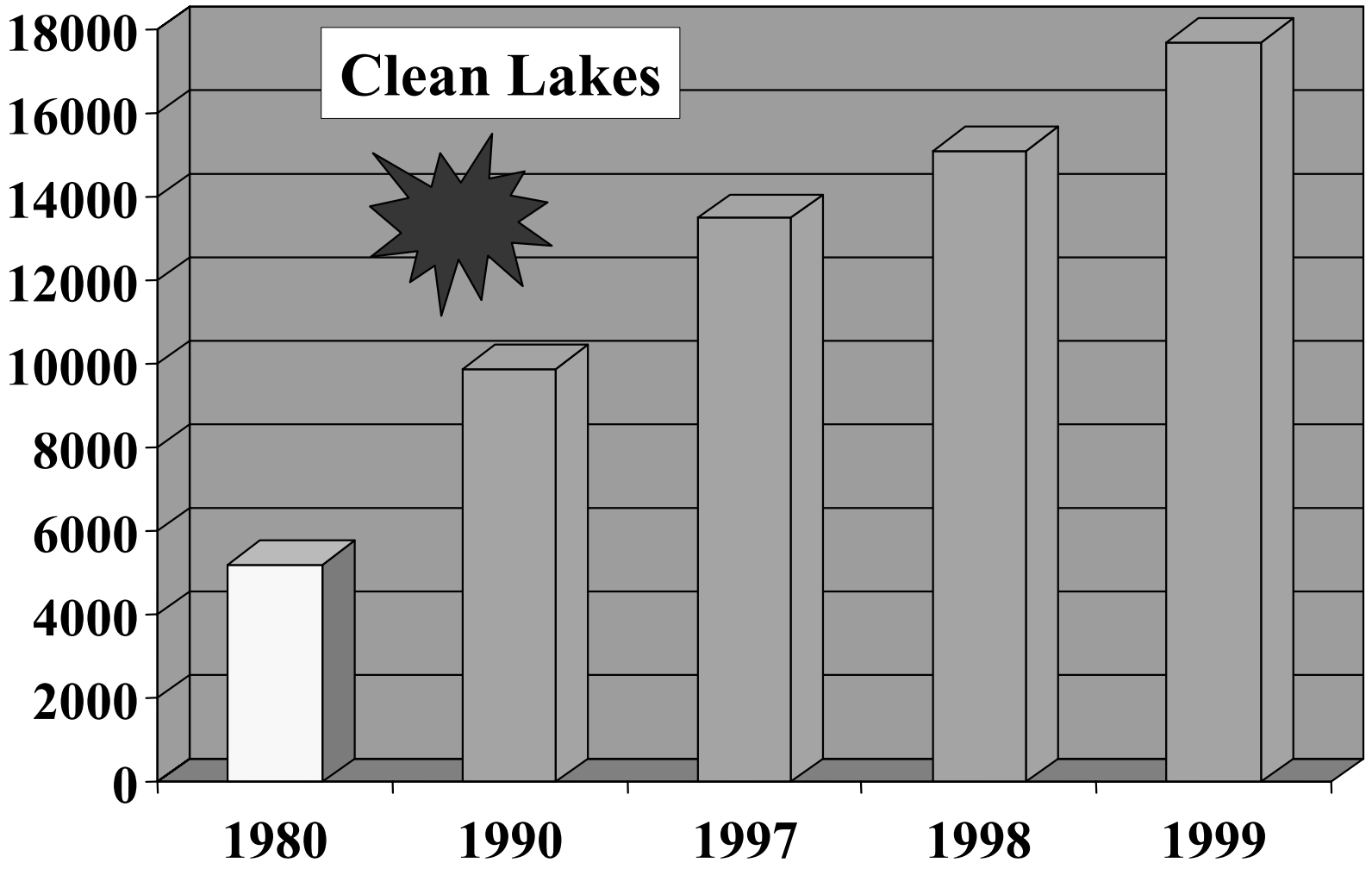
Secchi Disc Depth (inches)



Total Suspended Solids (Mg/l)



Fishing Trips



What we learned from Ahquabi

Water quality improvement can be considered a sound investment for Iowa. After renovation was completed

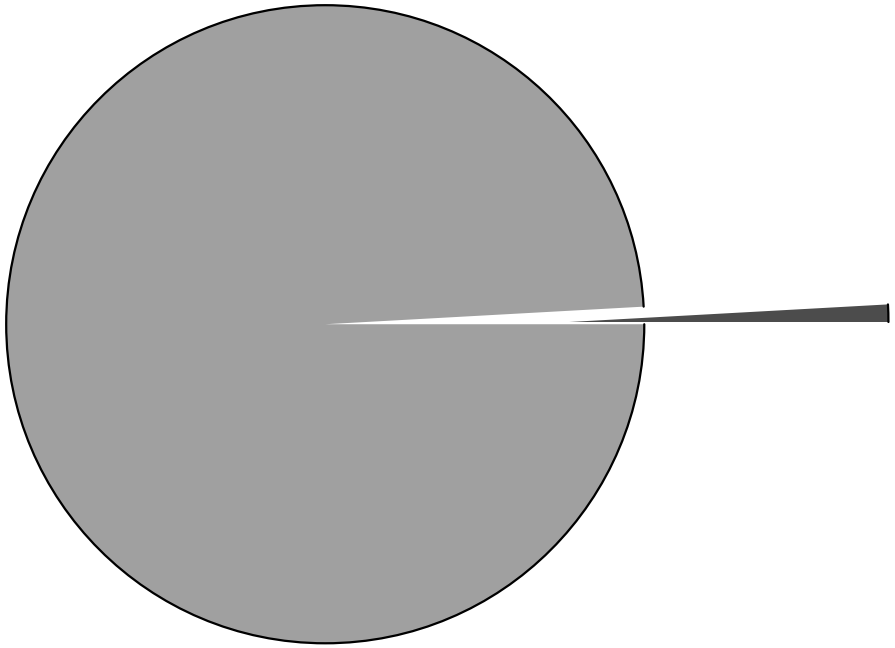
- More people use the lake
- Park use increased - 60,000 to 356,000 visitor days/year
- Increased park visitation yields a “payback” in only two years for the original $4 million cost of the project

There are many programs in place to improve water quality

- Regulatory (for instance NPDES permits)
- Incentives (for instance, wetland reserve program)
- Technical assistance
- BUT:

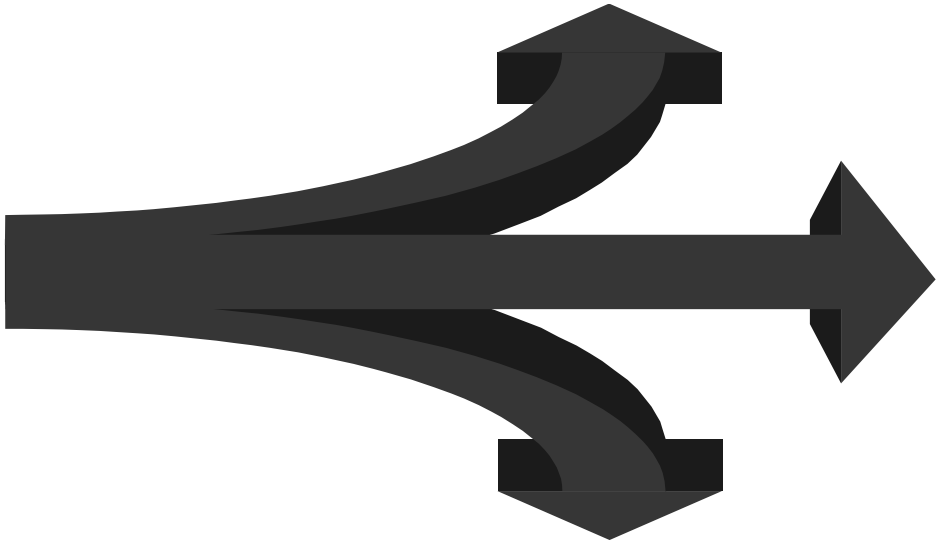
Now the kicker ...

Less than 1 percent of Iowa's overall general fund is spent protecting and improving our natural resources



It’s time to make a decision!

Continue as we have and hope for the best.

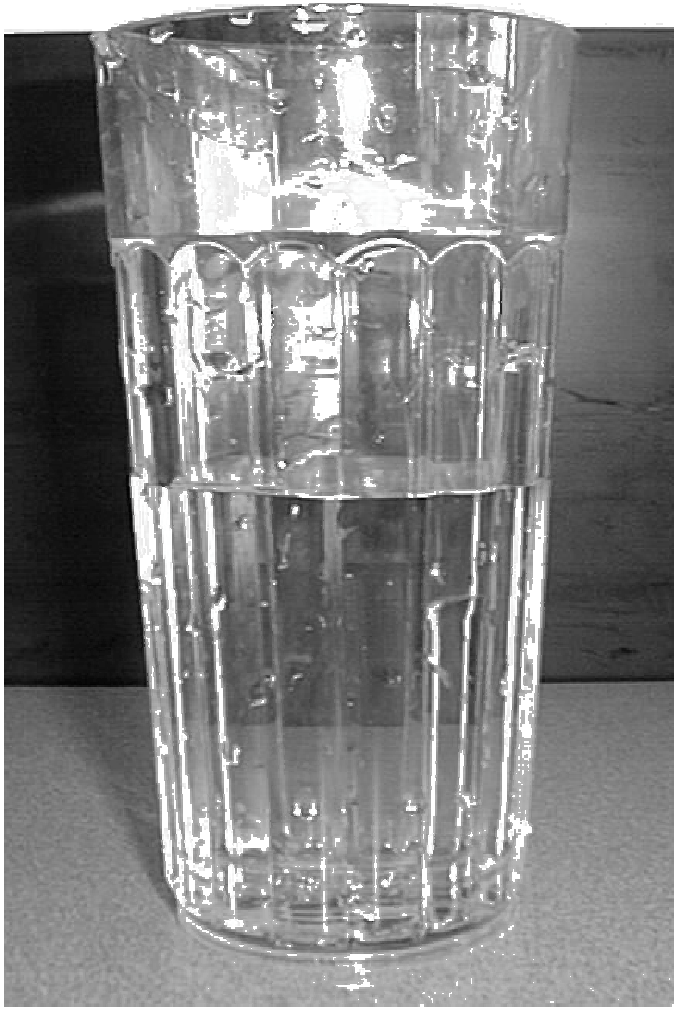


Same approach, but more resources for planning, assistance and implementation.

A new approach?

Half Full? Or Half Empty?

Regardless of your opinion …

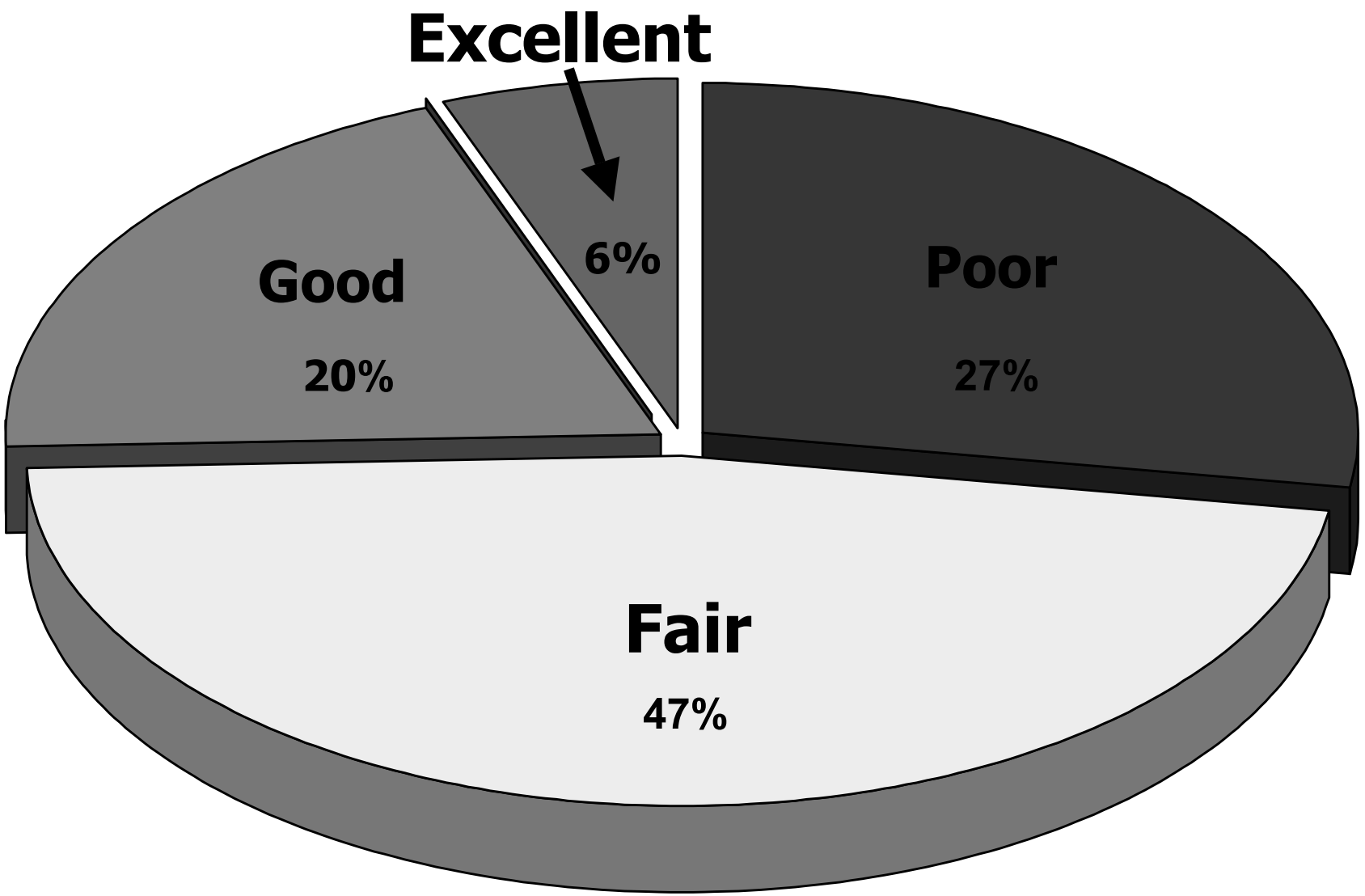


We all agree it can be fuller

2002 Random Sampling Project

51 Stream/River Sites

Fish Index of Biological Integrity



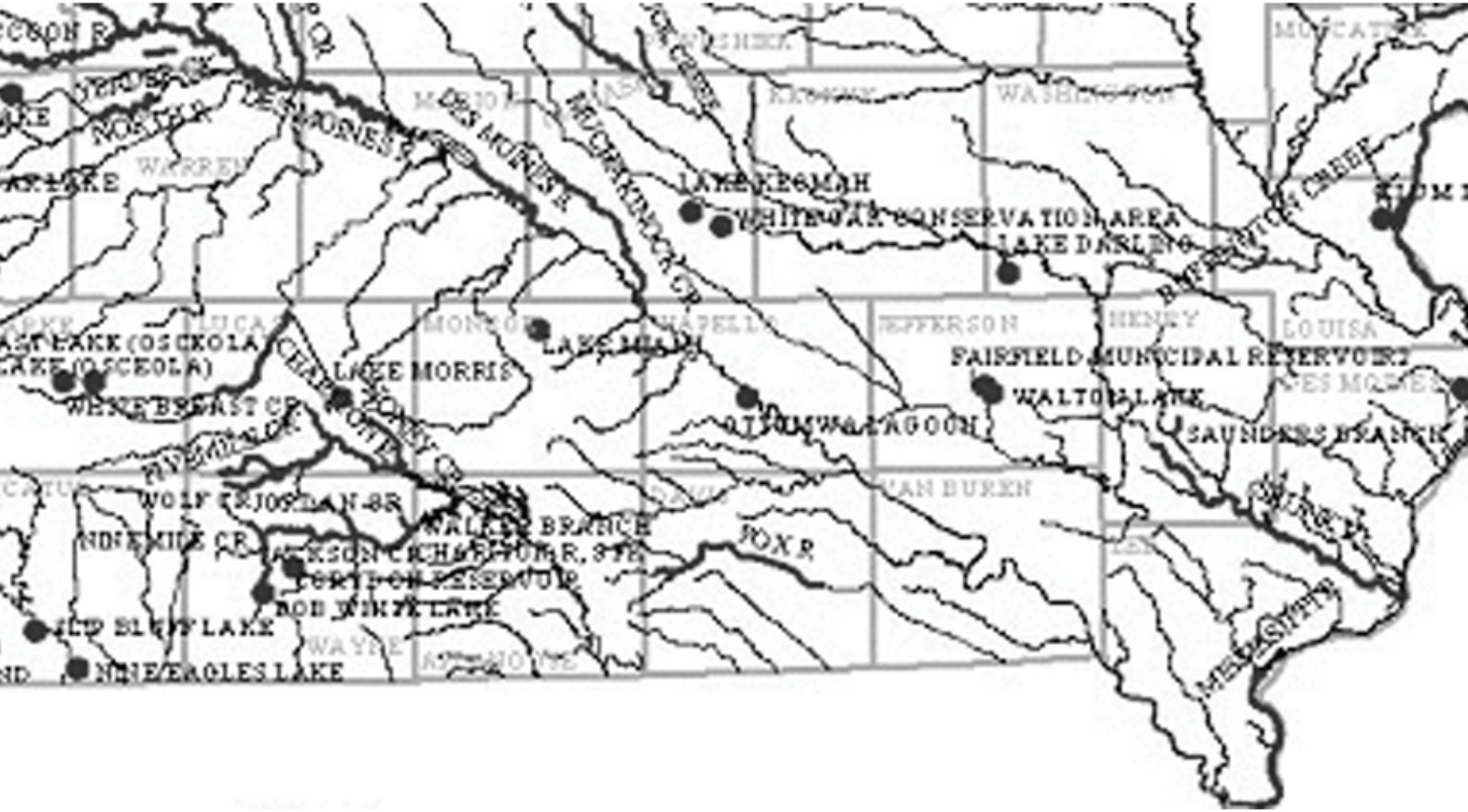
Water Quality - One of Governor Vilsack's Top 5 Priorities

Water Summit – November 24

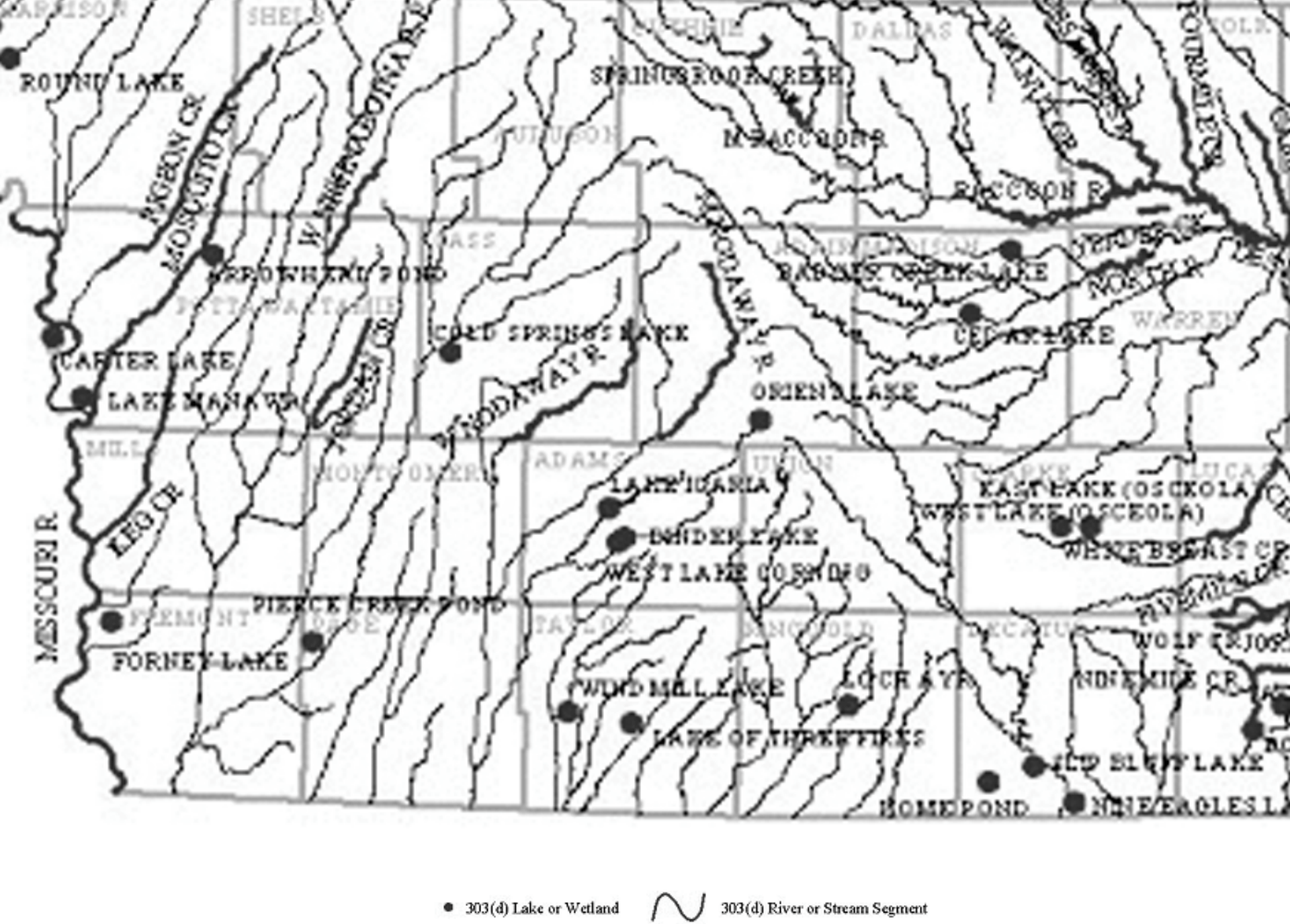
Scheman Auditorium, Ames, Iowa

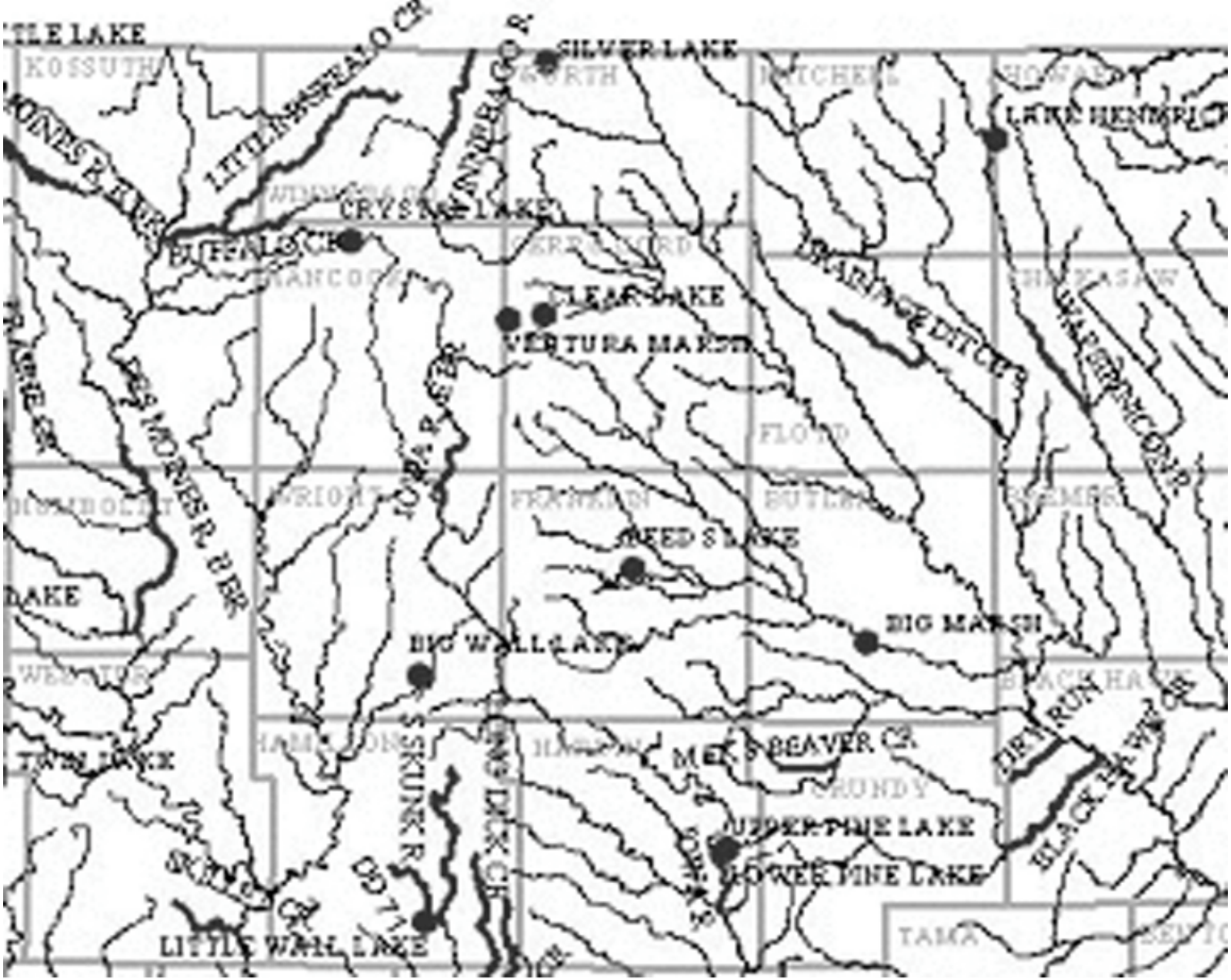
For information, www.iowadnr.com

Send written comments to
water.summit@dnr.state.ia.us

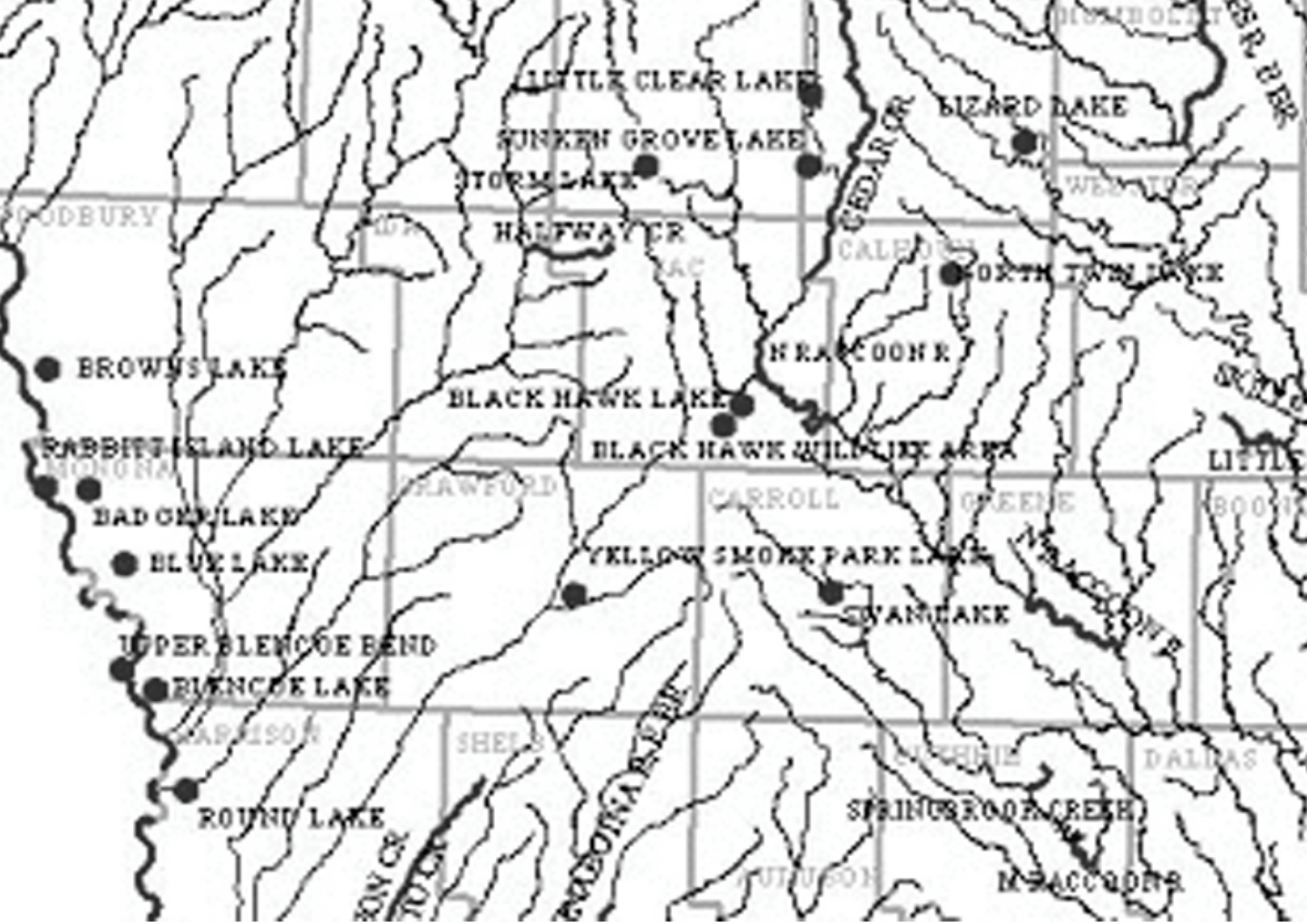


● 303(d) Lake or Wetland ~ 303(d) River or Stream Segment


ROUND LAKE
SPRINGBROOK CREEK
MACCOON
RACCOON R.
PIGEON CR.
MOSQUITO CR.
W. NISHNABOTNA R.
NISHNABOTNA R.
BADGER CREEK LAKE
CARTER LAKE
LAKE MANAWA
COLD SPRINGS LAKE
OTTER CR.
OTTER CR.
ODEN LAKE
LAKE IDAHA
EAST LAKE (OSCEOLA)
WEST LAKE (OSCEOLA)
WEST BRANCH
LEO CR.
MISSOURI R.
WEST LAKE (SHELBY CO.)
PIERCE CREEK POND
FORNEY LAKE
WOLF CR.
WOOD MILL LAKE
LAKE OF THREE FIRES
INDIAN CR.
HOME POND
NINE EAGLES L.
303(d) Lake or Wetland
303(d) River or Stream Segment



● 303(d) Lake or Wetland ∼ 303(d) River or Stream Segment



● 303(d) Lake or Wetland

303(d) River or Stream Segment

● 303(d) Lake or Wetland ∿ 303(d) River or Stream Segment

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